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Effects of carbon monoxid on plants.—SEELÄNDER²⁴ concludes from numerous experiments that carbon monoxid is to be regarded in general as a plant poison and should be classed as an anaesthetic weaker than chloroform. It exerts injurious effects upon seedlings of *Lupinus albus* and upon germinating spores of *Mucor stolonifer*, *M. Mucedo*, *Penicillium glaucum*, *Aspergillus niger*, and *Botrytis cinerea*. The injurious effect upon seedlings of *Lupinus albus* is shown by an inhibition in rate of growth of the rootlets, which effect is observable with concentrations varying from 75 per cent to 0.5 per cent. Injurious after-effects are to be observed only when the higher concentrations and long exposures are used. Seedlings exposed to the gas show an increased resistance to drying. The spores of the fungi named, germinated on nutrient gelatin in the presence of carbon monoxid, showed delay in germination, and an inhibition in rate of growth of the hyphae, which, especially in the higher concentrations, were irregularly bent and swollen. The minimum concentration necessary to produce the observed results was 1 per cent. The amount of respiration in tubers of *Solanum tuberosum*, bulbs of *Allium Cepa*, petals of roses and dahlias, and swollen seeds of *Pisum sativum* and *Brassica Napus* was little affected by a mixture of 79 per cent carbon monoxid and 21 per cent oxygen. The streaming of the protoplasm in *Nitella* and in the hairs of various plants, and the ciliary movements of *Chlamydomonas* and *Haematococcus* are not affected by several hours' exposure to the gas.—R. C. ROSE.

Permeability.—RUHLAND has already published a paper²⁵ showing that many dyes highly soluble in lipoids do not enter the protoplasm, while many not soluble in lipoids do. He now offers still more evidence²⁶ against OVERTON'S lipid theory of permeability, especially directing attention to the nature of the water solutions formed by the various dyes as shown by the ultramicroscope. He finds that many of the dyes, the water solutions of which are of a colloidal nature, readily enter the protoplasm; methylorange is an example. Others (wollviolletts and erioglaucin), highly soluble in lipoids and forming true solutions in water, do not enter protoplasm.

RUHLAND also offers evidence²⁷ against the NATHANSOHN and MEURER'S ion permeability hypothesis, which holds that in the exchange of electrolytes between cells and a bathing solution, an electro-chemical balance is maintained. He points out that OSTWALD'S hypothesis, with which this agrees, has long since become untenable from the physical standpoint. He also believes that the large amount of Ca^{++} and Mg^{++} given off in NATHANSOHN'S experiments in

²⁴ SEELÄNDER, KARL, Untersuchungen über die Wirkung des Kohlenoxyds auf Pflanzen. Beih. Bot. Centralbl. 24¹:357-393. 1909.

²⁵ Rev. Bot. GAZETTE 47:342. 1909.

²⁶ RUHLAND, W., Die Bedeutung der Kolloidalnatur wässriger Farnstofflösung für ihr Eindringen in lebende Zellen. Ber. Deutsch. Bot. Gesell. 26:772-782. 1909.

²⁷ ———, Zur Frage der Ionenpermeabilität. Zeit. für Bot. 1:747-762. 1909.